

We claim:

1. An apparatus for preparing films suitable for encapsulation from a solid film-forming material comprising:

- a) at least one casting drum;
- b) means for melting said film-forming material on demand;
- c) pump means; and
- d) an extrusion device.

2. An apparatus according to claim 1 wherein said film-forming material has an aqueous component.

3. An apparatus according to claim 2 wherein said film-forming material comprises at least one component selected from the group consisting of starch, gelatin, carrageenans, gums and synthetic materials.

4. An apparatus according to claim 3 wherein said film-forming material comprises iota-carrageenan and modified starch; water; a plasticizer; and a buffer.

5. An apparatus according to claim 3 wherein said film-forming material comprises gelatin, water and plasticizers.

6. An apparatus according to claim 1 wherein said means for melting said film-forming material comprises a melt grid.

7. An apparatus according to claim 6 wherein said melt grid is above the solid film-forming material.

8. An apparatus according to claim 6 wherein said melt grid is below said solid film-forming material.

9. An apparatus according to claim 1 wherein said pump means is a positive displacement pump.
10. An apparatus according to claim 9 wherein said positive displacement pump is selected from the group consisting of gear pumps, lobe pumps, sine pumps, worm pumps, and archimedes screws.
11. An apparatus according to claim 1 additionally comprising a reservoir means disposed between said means to melt said polymer and said extrusion device.
12. An apparatus according to claim 1 wherein said extrusion device comprises a chamber and an extrusion slot.
13. An apparatus according to claim 12 wherein said extrusion device is a coat hanger die.
14. An apparatus according to claim 1 additionally comprising a manifold disposed between said reservoir and said extrusion device.
- ~~15.~~ An apparatus for applying a polymer to a substrate comprising:
- a) means to melt said polymer on demand;
  - b) pump means to transport the molten polymer to an extrusion device;
  - c) reservoir means to dispose between said means to melt said solid polymer; and
  - d) at least one casting drum.
16. The apparatus according to claim 1 wherein said extrusion device comprises a chamber and an extrusion slot.

17. The apparatus according to claim 16 wherein said extrusion device is a coat hanger die.

18. The apparatus according to claim 15 additionally comprising a distribution manifold disposed between said reservoir and said extrusion device.

19. A process for the preparation of films suitable for encapsulation comprising the steps of:

- a) preparing a liquid gel mass;
- b) solidifying said liquid gel mass;
- c) melting only a portion of said solid gel mass as required and pumping the gel mass to an extrusion device; and
- d) forcing the liquid gel mass through said extrusion device.

20. An apparatus for preparing soft capsules, the apparatus comprising at least one casting drum and an extrusion device wherein said casting drum has deposited upon it by said extrusion device, a ribbon of material useful for encapsulation; and wherein said extrusion device is tilted from 2 to 10° from perpendicular and away from the direction of flow from the extrusion device.

21. The apparatus according to claim 20 wherein the tilt of said extrusion device is about 5°.